

What is claimed is:

1. A vehicle height adjusting apparatus comprising:
a suspension spring supporting a sprung weight
of a vehicle;

5 a pivotal unsprung member carrying a road wheel
and connected to a lower end of the suspension spring
so as to pivot in response to deformation of the
suspension spring; and

a drive mechanism adapted so as to be free from
10 the sprung weight and capable of moving the unsprung
member so as to cause the suspension spring to
increase or decrease in length and thereby adjusting a
vehicle height at the road wheel.

15 2. A vehicle height adjusting apparatus according
to claim 1, wherein the drive mechanism is disposed
between a vehicle body side member and the unsprung
member so as to be in parallel relation with the
direction in which the suspension spring deforms
20 resiliently.

3. A vehicle height adjusting apparatus according
to claim 1, wherein the drive mechanism is disposed
rearward of the suspension spring.

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4. A vehicle height adjusting apparatus according
to claim 1, wherein the drive mechanism comprises a
line member connected at one end thereof to one of a
vehicle body side member and the unsprung member and a
30 drive unit disposed at the other of the vehicle body
side member and the unsprung member and capable of
driving the line member toward and away from the other

of the vehicle body side member and the unsprung member.

5. A vehicle height adjusting apparatus according to claim 4, wherein the drive mechanism further comprises a resilient member connected to the other end of the line member, the drive unit being capable of driving the line member by way of the resilient member.

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6. A vehicle height adjusting apparatus according to claim 5, wherein the drive unit comprises a reel, and the resilient member comprises a spiral spring connected to the other end of the line member and wound around the reel, the drive unit being capable of varying an amount by which the spiral spring is wound around the reel.

7. A vehicle height adjusting apparatus according to claim 6, wherein the spiral spring is smaller in spring constant than the suspension spring.

8. A vehicle height adjusting apparatus according to 4, wherein the drive unit comprises a reel connected to the other end of the line member and rotatable to wind up the line member, a drive source for driving the reel and a worm gearing for transmitting power from the drive source to the reel, the worm gearing including a worm connected to the drive source and a worm wheel attached to the reel so as to be rotatable together with the reel in response to rotation of the worm.

9. A vehicle height adjusting apparatus according to claim 8, wherein the reel comprises a rotation shaft rotatably mounted at one end portion thereof on the vehicle body side member and connected at the other end portion thereof to the worm wheel so as to rotate together therewith, a hollow reel cylinder rotatably mounted on the rotation shaft and a resilient member disposed inside the reel cylinder and having opposite ends connected to an the rotation shaft and the reel cylinder, respectively.

10. A vehicle height adjusting apparatus according to claim 9, wherein the resilient member comprises a spiral spring having a radially inner end connected to an outer circumferential surface of the rotation shaft and a radially outer end connected to an inner circumferential surface of the reel cylinder.

11. A vehicle height adjusting apparatus according to claim 10, wherein the spiral spring is smaller in spring constant than the suspension spring.

12. A vehicle suspension system comprising:
a suspension member pivotally connected at an end portion thereof to a vehicle body side member and rotatably supporting a road wheel;
a suspension spring disposed between the vehicle body side member and the suspension member;
a line member connected at one end thereof to the suspension member; and
a drive unit installed on the vehicle body side member and connected to the other end of the line member, the drive unit being capable of driving the

line member toward and away from the vehicle body side member and thereby adjusting a vehicle height at the road wheel.

5 13. A vehicle suspension system according to claim 12, wherein the suspension member is elongated in a front-to-rear direction of a vehicle so that said end portion is a front end portion.

10 14. A vehicle suspension system according to claim 13, wherein the suspension member rotatably supports the road wheel at a rear end portion thereof, the line member being connected to the rear end portion of the suspension member.

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15. A vehicle suspension system according to claim 13, wherein the suspension member rotatably supports the road wheel at a rear side portion located forward of a rear end, the line member being connected to the
20 rear end of the suspension member.

16. A vehicle suspension system according to claim 12, wherein the suspension member is elongated in a vehicle width direction so that said end portion is an
25 inboard end portion.

17. A vehicle suspension system according to claim 16, wherein the suspension member rotatably supports the road wheel at an outboard end portion thereof, the
30 line member being connected to the outboard end portion of the suspension member.

18. A vehicle suspension system according to claim 12, wherein the drive unit comprises a reel connected to the other end of the line member and a reversible motor drivingly connected to the reel.

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19. A vehicle suspension system according to claim 18, wherein the drive unit further comprises a spiral spring wound around the reel, the other end of the line member being connected to the reel by way of the spiral spring.

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20. A vehicle suspension system according to claim 19, wherein the spiral spring is smaller in spring constant than the suspension spring.

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21. A vehicle suspension system according to claim 18, wherein the reel comprises a hollow reel cylinder, a rotation shaft rotatably mounted on the vehicle body side member and rotatably supporting thereon the reel cylinder and a spiral spring disposed inside the reel cylinder so as to wind around the rotation shaft and having opposite ends connected to the reel cylinder and the rotation shaft, respectively, the drive unit further comprising a worm gearing transmitting power from the motor to the rotation shaft.

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22. A vehicle suspension system according to claim 21, wherein the worm gearing comprises a worm wheel connected to the rotation shaft to rotate together therewith and a worm meshed with the worm wheel and connected to the motor so as to be driven thereby.

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23. A vehicle suspension system comprises:

a first suspension member elongated in a vehicle width direction and rotatably supporting at opposite axial ends thereof a pair road wheels;

5 a pair of second suspension members elongated in a front-to-rear direction of a vehicle and fixed to the opposite end portions of the first suspension member, each of the second suspension members having a front end portion protruding forward from a joint between the first and second suspension members and
10 pivotally connected at the front end portion to a vehicle body side member;

a pair of suspension springs each disposed between the vehicle body side member and the joint between the first and second suspension members;

15 a pair of line members each connected at one end thereof to the second suspension member; and

a pair of drive units installed on the vehicle body side member and each connected to the other end of the line member, each drive unit being capable of
20 driving the line member toward and away from the vehicle body side member and thereby adjusting a vehicle height at corresponding one of the road wheels.

24. A vehicle suspension system comprising:

25 a pair of suspension members elongated in a vehicle width direction and pivotally connected at inboard end portions thereof to a vehicle body side member and rotatably supporting at outboard end portions thereof a pair of road wheels, respectively;

30 a pair of line members each connected at one end thereof to the outboard end portion of each suspension member; and

a drive unit installed on a vehicle body side member and drivingly connected to the other end of each line member so as to be capable of driving the line members in a vehicle width direction and thereby
5 adjusting the vehicle height at the road wheels.

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